WHAT IS CLAIMED IS:

1. A system for acquiring position information relevant to a specific axis comprising:

a movable apparatus having first and second reflective faces at a side associated with a parallel to said specific axis, said first reflective face being at an angle to said second reflective face and said first and second reflective faces being non-parallel to said specific axis;

an interferometer positioned to direct a first beam for impingement of said first reflective face and to direct a second beam for impingement of said second reflective face, said interferometer including a beam combiner aligned with a detector; and

beam-steering members located with respect to said interferometer and said first and second reflective faces to manipulate said first and second beams to reach said beam combiner without a beam path segment that varies in length in unity with displacements of said movable apparatus along said specific axis.

2. The system of claim 1 wherein said first and second reflective faces are surfaces that are angled such that beam paths of said first and second beams vary in opposition when said movable apparatus is displaced along said specific axis.

3. The system of claim 2 wherein said interferometer is configured to generate said first and second beams and to direct said first and second beams at a generally perpendicular angle with respect to displacement of said movable apparatus along said specific axis, said first and second reflective faces being oppositely angled as measured with respect to said perpendicular angle.

4. The system of claim 1 wherein said beam-steering members are mirrors that are positioned such that, when said movable apparatus is in a symmetry position on said specific axis, each beam path segment in which said first beam either impinges or has been reflected from said movable apparatus is symmetrical to a corresponding beam path segment of said second beam.

5. The system of claim 4 wherein said beam-steering members include first and second beam-return mirrors respectively aligned with and oriented to said first and second reflective faces to define return beam path segments, said first beam thereby reflecting from said first reflective face to said first beam-return mirror and being reflected back to said first reflective face, said second beam thereby reflecting from said second reflective face to said second beam-return mirror and being reflected back to said second reflective face.

6. The system of claim 5 wherein said first and second beam-return mirrors are in any orientation and are selected from at least one of the following types: reflective components, including plane mirrors and roof mirrors, refractive components, diffractive components, and holographic components.

7. The system of claim 1 wherein said movable apparatus is a support stage within a wafer lithography system having a lithography optical axis, said support stage being mounted for movement in directions perpendicular to said lithography optical axis and for movement aligned with said lithography optical axis, said specific axis being said lithography optical axis.

8. The system of claim 7 wherein said interferometer includes a laser source and a beam splitter that are cooperative to emit said first and second beams with differences in at least one of frequencies and polarization.

9. The system of claim 6 wherein said beam-steering members remain beyond reaches of said support stage in said X and Y directions as said support stage is displaced.

10. A method of utilizing an interferometric system to acquire position information of a movable apparatus along a specific axis comprising:

directing first and second beams to impinge said movable apparatus;

manipulating said first and second beams via reflections such that each beam path segment in which said first beam either impinges or has been reflected from said movable apparatus is symmetrical to a corresponding beam path segment of said second beam when said movable apparatus is in a beam symmetry position along said specific axis;

combining said first and second beams as a basis for interferometrically acquiring said position information.

11. The method of claim 10 wherein directing said first and second beams toward said movable apparatus is a step in which said first and second beams are optically distinguishable with respect to at least one of frequency and polarization and wherein said movable apparatus is a wafer stage.

12. The method of claim 11 wherein manipulating said first and second beams includes positioning mirrors to define said beam path segments in which said first and second beams either impinge or have been reflected from said wafer stage, including locating said mirrors beyond ranges of motion of said wafer stage in directions perpendicular to said specific axis, said wafer stage including first and second reflective faces in alignment with said beam path segments.

13. The method of claim 12 wherein positioning said mirrors includes selecting said mirrors from at least one of the following types: reflective components, including plane mirrors and roof mirrors, refractive components, diffractive components, and holographic components.

14. The method of claim 10 wherein manipulating said first and second beams is implemented without maintaining a beam path segment that is parallel to said specific axis and that varies in length with displacement of said movable apparatus along said specific axis.

15. The method of claim 14 wherein manipulating said first and second beams includes providing said movable apparatus to include first and second reflective faces that are oppositely sloped with respect to a plane perpendicular to said specific axis.

16. A system for acquiring position information relevant to a specific axis comprising:

a wafer stage movable in X and Y directions and in a perpendicular Z direction, said Z direction being aligned with a lithography exposure axis, wherein a perimeter is defined by extremes of travel of said wafer stage in said X and Y directions, said wafer stage having first and second surfaces on a side thereof:

a source of first and second beams, said first beam being directed to reflect from said first surface and said second beam being directed to reflect from said second surface;

a plurality of optical members arranged to define first and second beam paths for said first and second beams following reflections from said first and second surfaces, said optical members being located beyond projections of said perimeter in said Z direction, wherein both of said first and second beam paths vary in length when said wafer stage is moved in said Z direction;

a beam combiner at ends of said first and second beam paths to combine said first and second beams; and

a processor operatively associated with said beam combiner for acquiring interferometry-based determinations regarding movements of said wafer stage in said Z direction.

17. The system of claim 16 wherein said source emits said first and second beams having different frequencies and different polarizations.

18. The system of claim 16 wherein said optical members include a first mirror aligned with and oriented to said first surface of said wafer stage to redirect said first beam back to said first surface, said optical members further including a second mirror aligned with and oriented to said second surface of said wafer stage to redirect said second beam back to said second surface.

19. The system of claim 18 wherein said first and second surfaces of said wafer stage are oppositely sloped with respect to a plane perpendicular to said Z direction.

20. The system of claim 19 wherein said opposite slopes are such that said first and second beam paths vary in opposition when said wafer stage is moved in said Z direction.

21. The system of claim 18 wherein said first and second mirrors for respectively redirecting said first and second beams are in any orientation and are selected from at least one of the following types: reflective components, including plane mirrors and roof mirrors, refractive components, diffractive components, and holographic components.